

Eco-systems and Macroinvertebrate Monitoring Program along the Truckee River & the Vicissitudes of Nature and Man

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TMWRF Monitoring Programs

- EFFLUENT MONITORING
- EFFLUENT BIOASSAY (WET)
- RIVER MONITORING
- CONTINUOUS RIVER MONITORING
- RIVER GROUND WATER MONITORING
- MACROINVERTEBRATE MONITORING
- ADDITIONAL STUDIES:
ALGAL BIOMASS, DON, SYNOPTIC, ETC.

TMWRF WEB PAGE

- DATA Available at: WWW.TMWRF.COM



EFFLUENT MONITORING PARAMETERS

- BOD (INHIBITTED AND UNINHIBITTED)
- SUSPENDED SOLIDS
- TDS
- TN
- TP
- FECAL COLIFORMS
- CHLORINE, pH, DO, Temperature, Alkalinity, TOC

Bioassay (WET) for TMWRF and Sparks Marina Park



RIVER MONITORING STATIONS

- McCarran Bridge
- North Truckee Drain at Kleppe
- Steamboat Creek at Cleanwater Way
- Lockwood Bridge
- Clark Bridge
- *Derby Dam
- *Painted Rock Bridge
- Wadsworth Bridge
- **Nixon

RIVER MONITORING PARAMETERS

- Temperature
- Dissolved Oxygen
- Ortho Phosphate as P (filtered)
- Total Phosphate as P (filtered)
- Total Phosphate as P (unfiltered)
- Nitrate as Nitrogen
- Nitrite as Nitrogen
- Ammonia as Nitrogen
- Kjeldahl Nitrogen (filtered)
- Kjeldahl Nitrogen (unfiltered)
- Total Dissolved Solids
- Total Alkalinity
- Electrical Conductivity
- Dissolved Organic Carbon
- Flow at USGS Stations

CONTINUOUS RIVER MONITORING STATIONS

- Mogul
- East Mc Carran Bridge
- Truckee Drain
- Steamboat Creek
- Lockwood Bridge
- Clark Bridge
- Painted Rock Bridge
- Wadsworth Bridge
- Marble Bluff North

CONTINUOUS RIVER MONITORING PARAMETERS

- DISSOLVED OXYGEN
- TEMPERATURE
- pH
- ELECTRICAL CONDUCTIVITY
- TURBIDITY

Deployment of CMU



CMU Maintenance and Data Collection



Truckee River Ground Water Monitoring

- About 60 Wells Monitored quarterly for the usual suite of analyses
 - Herman Ditch
 - Big Bend Ranch
 - Piute Pit
 - John's Ranch
 - Numana Hatchery
 - Nixon Area
 - Sister Mc Carran Ranch

Ground Water Data Collection



MACROINVERTEBRATE MONITORING STATIONS

- 18 Years of Quarterly Surveys:
Macroinvertebrates enumeration reported on an annual basis
 - Mc Carran Bridge
 - Lockwood Bridge
 - Tracey/Clark Bridge
 - Wadsworth Bridge (S bar S)

ADDITIONAL MACROINVERTEBRATE MONITORING STATIONS

- Modeling Efforts with DRI and Brock
 - Patagonia (West Reno)
 - Patrick Bridge (Sister McCarran Ranch)
 - Painted Rock Bridge (east of Derby)
 - John's Ranch
 - Little Nixon

Site Location - in the Riffles



2001. 5. 9 10:45

Hess Sampler in the riffles



2001. 5. 9 10:45

Shaking the Gravels



2001. 5. 9 10:48

Sample Inspection



2001. 5. 9 10:47

Identification and Enumeration

- Identify to genus species level (Family level later for Storet-EDAS System)
- Verification by Idaho State University

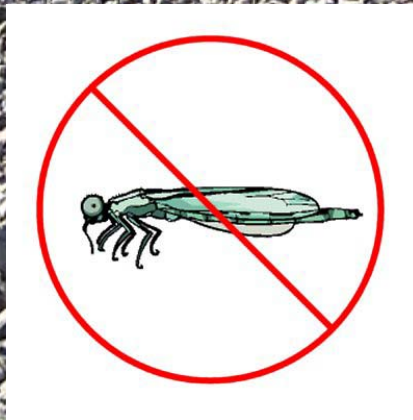
Data Availability

- 18 Years of Surveys
- Quarterly by Site
- Counts of each are at least to Family
- Most specimens to Genus species level
- Organic Biomass/unit area

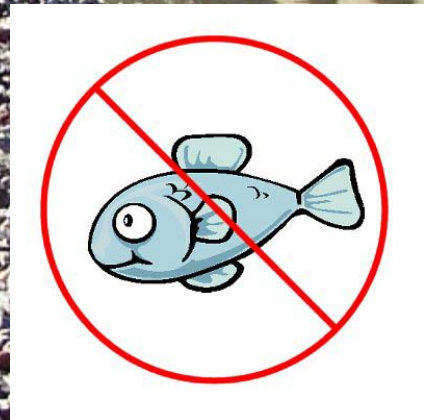
What Does All This Mean?



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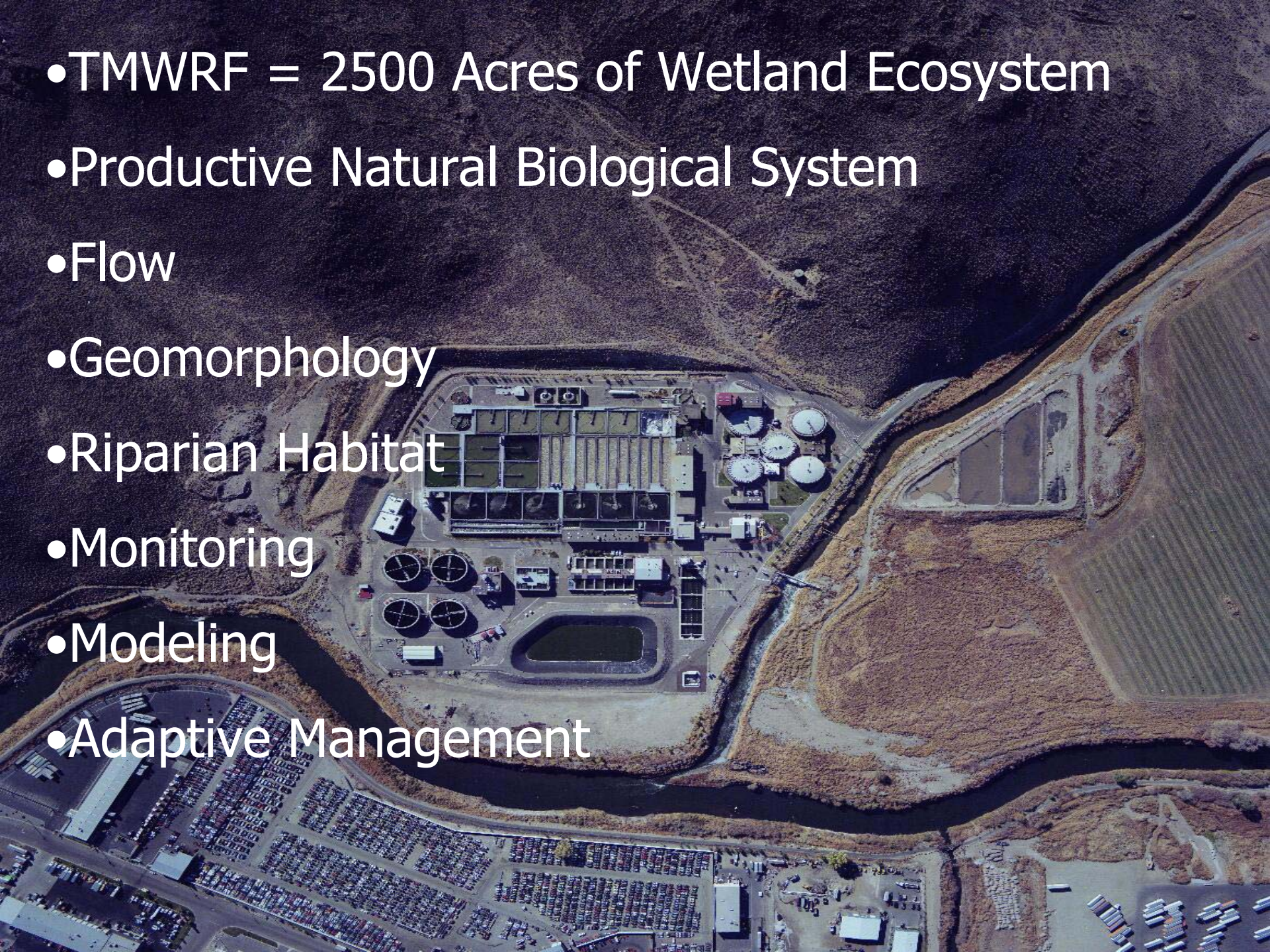


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Major Issues on Truckee River affecting Macroinvertebrate Ecology?

- Flow
- Geomorphology
- Riparian Habitat
- Management
- Water Quality

- TMWRF = 2500 Acres of Wetland Ecosystem
- Productive Natural Biological System
- Flow
- Geomorphology
- Riparian Habitat
- Monitoring
- Modeling
- Adaptive Management



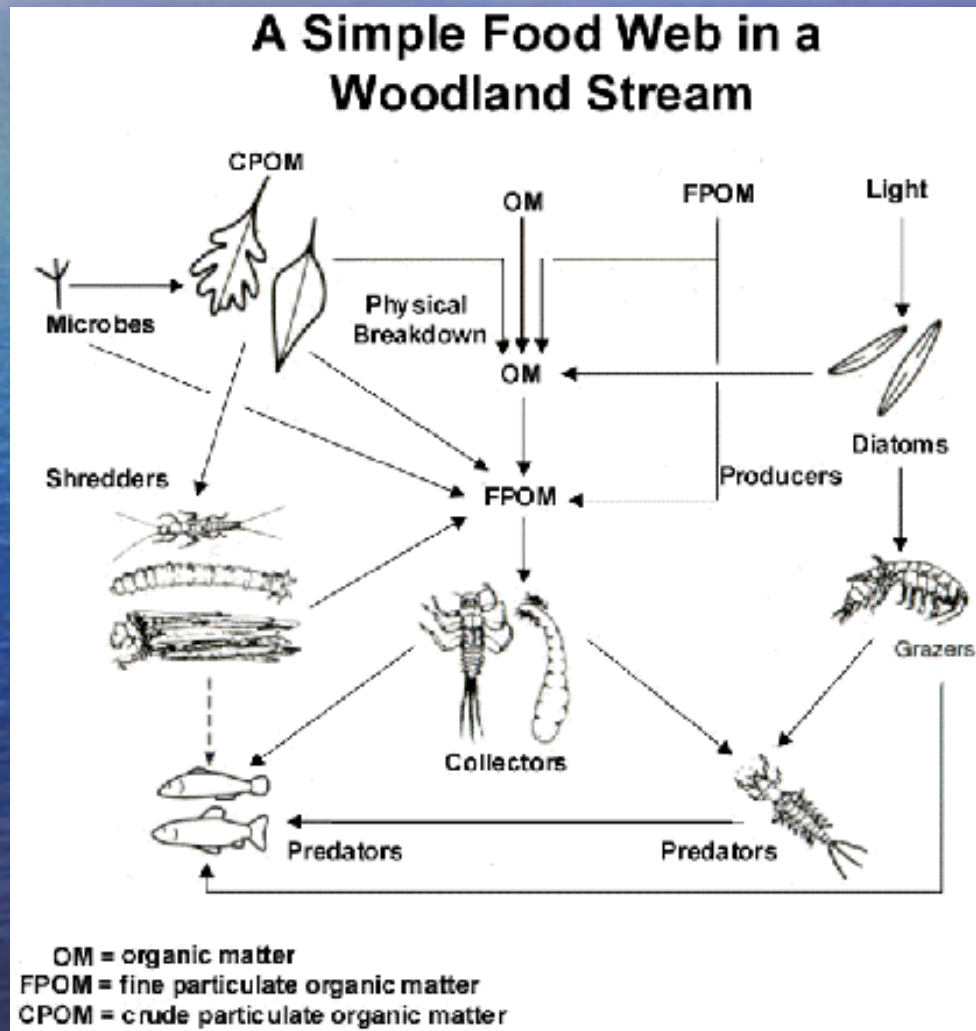
Issues on the Truckee River?

- Flows
- Geomorphology
- Riparian Habitat
- Ecosystem Form and Function
- Cold Water Fishery
- Assimilative Capacity

Flows & Geomorphology & Riparian Habitat



Ecosystem Form and Function & Assimilative Capacity



Cold Water Fishery



Management Decisions For Truckee River?

- Buy Water Rights
- Fund River Restoration
- Manage flows for fish runs, spawning, scouring, food web and water quality.
- Manage nutrients to encourage appropriate algal growth for healthy Macroinvertebrate communities and productive cold water fisheries.
- Use Monitoring for Adaptive Management



The Undesired Result

The Desired Result



Summary

- Current programs tend to focus on water quality
- Work needs to be performed to better define ecology on the river in different segments throughout the year
- Indicator monitoring program should compare results to river ecology at sample sites
- Information that is gathered should provide a scientific basis to help guide river management and operational practices